

Facilities Quarterly

ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY ♦ FACILITIES DEPARTMENT NEWSLETTER

JANUARY
2001

NEW NANOSCIENCES FACILITY PROPOSED

A project team of Facilities, programmatic, and EH&S personnel are hard at work on the conceptual design for the Molecular Foundry. Under consideration for funding in FY 2002, with completion in 2007, this major new research complex will be located in the Old Town area of Berkeley Lab, next to the Advanced Light Source (ALS). Devoted to nanotechnology research and development, the Molecular Foundry will support the National Nanotechnology Initiative and give a big boost to Berkeley Lab's already strong nanosciences capability.

The project will dramatically change the face of the Lab, replacing a number of familiar, if dowdy, Old Town buildings with a state-of-the-art facility. The Molecular Foundry will be a terraced building, ranging from two to four stories, with a floor area of approximately 8,400 square meters (90,000 square feet). Of this,

assignable programmatic space will account for around 5,000 square meters (53,000 square feet).

The building's west wing and east wing will be connected by an enclosed "bridge" that will house meeting rooms. Another enclosed bridge will connect the east wing to the ALS. The site's sloped topography is used to advantage, with truck access to scientific equipment staging areas on the first levels of both wings, a main entrance at the first level of the west wing (adjacent to the ALS), and secondary entrances from new parking areas to the second level of the west wing and third level of the east wing.

Environmentally responsible design and construction practices will be used throughout. The building's environmental impact will be reduced through attention to sensitive site development, water and energy conservation, and indoor air quality; use of environmentally responsible building materials; and waste reduction. The building's siting and orientation will minimize east-west exposures and use sunshades and recessed windows to minimize southern solar loads. Highly reflective ceilings and indirect lighting will reduce glare. Good indoor air quality will be promoted through use of operable windows, adequate ventilation, use of building materials and finishes with low emission or no emissions, and use of interior plantings to remove air pollutants.

Energy conservation measures will include high insulation values installed external to the building's thermal mass, a high-albedo roof to reflect solar heat, use of natural light, double-glazed windows, and many innovations in the buildings electrical and mechanical systems—such as occupancy sensors, heat recovery from ventilation exhaust, and a rooftop photo-

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Conceptual drawing of the proposed Molecular Foundry (courtesy of Nick Peterson).

ELECTRICAL PROJECT RECOGNIZED

Berkeley Lab's recently completed Blackberry Switching Station Replacement Project has received an honorable mention at DOE's annual Program and Project Management Awards, which were presented in October at the Program and Project Management Workshop 2000 in Rosslyn, Virginia. The new \$6.5 million switching station went online last July, completing the rehabilitation of Berkeley Lab's 12 kV electrical power system.

Among the project's significant accomplishments were its exceptional construction safety record—with no lost time accidents, its completion 4 months ahead of schedule and under budget, and an exceptional cost performance in engineering, design, and

inspection, which amounted to only 16% of the construction cost.

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Facilities Quarterly is available online at
<http://www.lbl.gov/Workplace/Facilities>.

NANOSCIENCES

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to voltaic system tied into the electrical grid.

The complex will feature wet and dry laboratories, space for scientific support equipment, shared workstations for lab technicians, conference rooms, and private and shared offices. The balance of space will consist of common areas and building infrastructure. Open office and modular laboratory designs will allow easy reconfiguration of spaces as scientific and organizational needs change.

The Molecular Foundry will bring together research projects involving the synthesis, processing, fabrication and in-

situ characterization of novel molecules and nanoscale materials. The laboratories and offices will support multidisciplinary nanosciences research in synthetic chemistry and polymers, nanotubes and nanocrystals, ceramics, femtosecond spectroscopy and diffraction, magnetic materials, scanning electron/scanning auger microscopy, detector development, analytical and surface science instrumentation, x-ray imaging, and computational infrastructure. Laser labs and labs with vacuum systems will be incorporated into the design, as will a 6,000 square-foot high-bay staging area for ALS experiments.

To make way for this major structure, 13 buildings and trailers in Old Town

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ELECTRICAL INFRASTRUCTURE

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These high marks were achieved despite the difficulties of performing construction work in the middle of an operating laboratory. Particular challenges included management of traffic disruptions due to street excavation, and of utility disruptions as the new system was tied into the Lab's grid.

The Facilities Projects Group, headed by Bert Schleifer and assisted by YEI Engineers, Inc., provided quality control and assurance during design and construction. Project Manager Chuck Taberski was responsible for the management of cost, scope, and schedule. Chuck was also responsible for quality assurance during project formulation and implementation. Other team members were Mahesh Gupta, Chief Electrical Engineer and technical coordinator; Steve Blair, civil engineer; Michael Dong, mechanical engineer; and Kathy Milano, architect. As technical coordinator, Mahesh was also responsible for design and technical quality control, while Chuck developed the project execution plan.



FROM THE FACILITIES MANAGER...

We are definitely now in the 21st century, whether you believed it started last year or this year. It is a good milestone from which to look back on what has been accomplished and what can be accomplished.

Fiscal Year 2000 was a very bad year for safety. We averaged a reportable accident every two weeks. This year things have started better and there has been only one reportable in the past three months. I would remind you that February has been, historically, a very bad month. We seem to have more accidents in that month than in most other months. This year let's break that trend and have no accidents. I am sure we can do it if we all take a minute to ensure that we follow our safety procedures and don't rush the work.

The paradigm that we have been following with DOE has changed and may change more as a new administration takes over. Headquarters has moved from a maintenance mode in funding to one of favoring new construction. The Lab is proposing several new buildings in the next decade, including an Operations Building between buildings 76 and 69 that will allow us to consolidate the Department. We are also requesting a replacement for Building 29 and two research buildings, one for nanoscience and one for Energy and Environment.

We are losing several people who have helped make the Department the outstanding organization it is. Dick Baker retired after nearly 40 years, and Bert Schleifer, who has served as Deputy Facilities Manager for nearly nine years, will retire as soon as his relief is here. Also retiring are Joe Morse, Wayne Sparse, and Jay Bricker. We wish them all well and invite them back to the Christmas party.

Finally we thank Bob Martin for his service this past year as chair of the WOW steering committee and welcome Janice Sexson as the new chair for 2001.

I wish each of you the happiest of New Years.

Bob Camper

Work SMART...

WORK SAFELY...

If it is not safe, STOP the work.

CONFERENCE ROOM RESERVATIONS

Last August, the Work Request Center began handling reservations for 4 additional rooms in Netscape Calendar and the Facilities WRC Conference Room Website. They are as follows:

54 -101 Cafeteria Entry
54 -106 Cafeteria Dining*
54 -196 Perserverance Hallway
54 -Lawn Area

For questions or to reserve a room please contact Denise Iles at x6011 or the Work Request Center.

*The Cafeteria dining area can only be reserved after 2:00 pm.

FACILITIES DEPARTMENT

Facilities provides Berkeley Lab with a full range of architectural and engineering, construction, and maintenance services for new facilities and for modification and support of existing facilities.

Architectural and engineering services include facility planning, programming, design, engineering, project management, and construction management. Maintenance and construction functions include custodial, gardening, and lighting services; operation, service, and repair or replacement of equipment and utility systems; and construction of modifications, alterations, and additions to buildings, equipment, facilities, and utilities. Additional services include bus

and fleet management, mail distribution, stores distribution, property management, property disposal, cafeteria operations, and electronics repair.

Ongoing Facilities activities include renewal and upgrade of site utility systems and building equipment; preparation of environmental planning studies; in-house energy management; space planning; and assurance of Laboratory compliance with appropriate facilities-related regulations and with University and DOE policies and procedures.

The Work Request Center expedites facility-related work requests, answers questions, and provides support for facility-related needs.

FOCUS ON SERVICE: LONG RANGE PLANNING

The Facilities Planning Group has responsibility for ensuring the effective use of land and capital assets at Berkeley Lab as well as their orderly future development. An important component of this responsibility is long range planning.

Earlier this year, the Directors Action Committee (DAC) focused its attention on defining a research vision and identifying requirements for a supporting scientific infrastructure. The Facilities Planning Group and the Office of Planning and Communications facilitated these efforts and have subsequently prepared two documents—an Institutional Plan and a Strategic Facilities Plan—that advance this vision. These documents, which were well-received by the Office of Science, were prepared for the Department of Energy and describe DAC's near-term vision.

Preparation of the Institutional Plan and Strategic Facilities Plan have set the stage for another major under-

taking: updating Berkeley Lab's Long-Range Development Plan (LRDP). The LRDP will establish the Laboratory's general direction for growth, land use and physical development for the next 20-plus years. An LRDP is required by the University of California for each campus and laboratory in its system. Berkeley Lab has changed significantly since the LRDP was last updated in 1987, and will certainly see additional changes as we move forward. The LRDP planning process will consider the capabilities of our current facilities and how well they match Berkeley Lab's scientific vision.

Although LRDP policies have not yet been established, Berkeley Lab has developed some preliminary parameters that are likely to appear in the LRDP. For example, Laboratory population growth is expected to remain near the historic rate of 1.5 percent per year. This would mean a population of about 5,500 by the year

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COMPLIMENTS

Matt Kotowski of EH&S sends his congratulations to Kevin Trigales and his riggers for the outstanding safety record compiled during the Bldg 51 Steel Fabrication Project. "We moved hundreds of tons of shielding blocks, disassembled the steel restraints for a good portion of the magnet structure, removed the giant steel yokes, disassembled them, cut them up, welded them into shielding blocks and shipped them off to Los Alamos. This was probably the most hazardous work performed at LBNL during this period of time, at least with respect to the possibility of occupational injuries." During the entire process, there were no recordable injuries and only one first aid case.

Claude Lyneis, Head of 88-Inch Cyclotron, thanks Don Weber, John Hutchings and the Plant Maintenance Technicians for "very professional and seamless operation" in repairing the Building 88 cooling tower fan bearings. "Our Cyclotron operating schedule is all but overbooked with experiments," writes Lyneis, "We really didn't know if it could be done in the time allotted and almost expected we'd be spending Monday evening and Tuesday, with experimenters standing around, scrambling to get the Cyclotron back up and running. As it turns out, your estimate was right on, and the tower was back in operation before noon..."

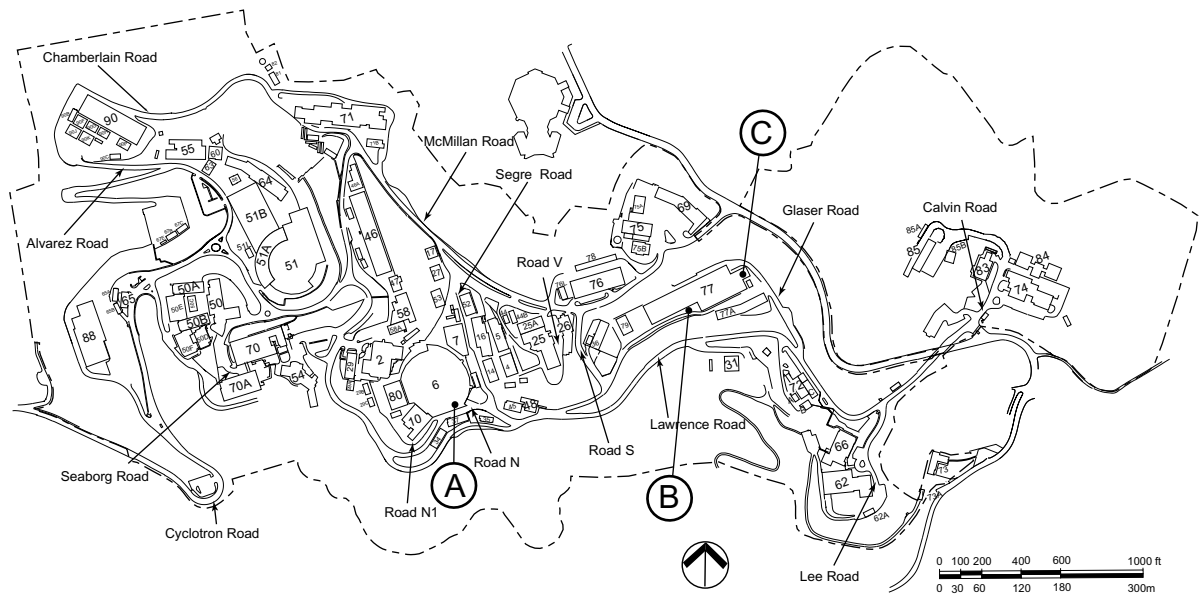
WORK REQUEST CENTER

Telephone	6274
Fax	7805
E-Mail	WRC@lbl.gov
Mailstop	76-222
Web	web3.lbl.gov/wrc

WRC welcomes questions or comments about Facilities Quarterly.

CONSTRUCTION AND YOU

Current construction projects affecting parking, or vehicular or pedestrian circulation



Project Contacts. The name in parentheses after each project is the Project Manager (PM) or other person who is responsible for project oversight: coordinating all phases from design through construction; controlling cost, scope and schedule; and ensuring client satisfaction. This person will be happy to answer any questions about the project.

Bldg 6: 2nd Floor Office & Lab Buildout

A	JAN	FEB	MAR
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Parking spaces along the south side of Bldg 6 will be reserved for contractor use. (Richard Stanton, x6221)

Bldg 77-142: Clean Room Installation

JAN	FEB	MAR	C
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Construction is expected to start in January. Location of laydown areas and contractor parking area is still to be determined. (Bill Wu, x5216)

Bldg 77: Rehabilitation of Building Structure and Systems

B	JAN	FEB	MAR
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Construction is in progress around the building perimeter and in selected areas within the building. Laydown areas will be located adjacent to Building 77 and Glaser Road. (Bill Wu, x5216)

“CAUTION—CONSTRUCTION AREA”

Construction barricades and warnings are there for your protection. Under no circumstances should you cross a construction barricade, or disobey posted warnings or directions. Contact the Project Manager for escorted access to construction areas.

ON THE DRAWING BOARD

projects in study or conceptual design

Research Support Building

Planning is going forward on a new 30,000-SF (2,900-m²) building that will house key Berkeley Lab administrative functions now scattered across the site. This "Town Center" will be located on the site of Building 29, which will be demolished. Its central location will allow efficient administration and easy access for all staff and guest researchers. (Richard Stanton, x6221)

Bevalac Decontamination and Decommissioning

Now in the planning stage, this project will remove and dispose of the former Bevalac heavy-ion accelerator and many associated structures. The entire Building 51 complex is slated for removal. (Dave Tudor, x4171)

Building 77, Rehabilitation of Building Structure and Systems, Phase 2

This project will correct mechanical, electrical and architectural deficiencies in Buildings 77 and 77A. The

conceptual design phase is in progress. Funding will be requested for FY 2003. (Bill Wu, x5316)

Rehabilitation of Site Mechanical Utilities, Phase 2

This project will extend the useful lives of Berkeley Lab's natural gas, low conductivity water (LCW), compressed air, and storm drain systems. All service risers in the natural gas system will be replaced with nonmetallic pipe. LCW system aluminum pipe will be replaced with stainless-steel pipe. Cathodic protection will be added to the compressed air system. Steel pipe in the storm drain system will be replaced or relined. Facilities has prepared a conceptual design report for FY2002 funding consideration. (Bill Wu, x5316)

IN PROGRESS

funded projects

Bldg 88: Seismic Anchoring

Architectural and engineering final design has been completed for seismic reinforcement of caves 1 through 5. Completion of work in cave 4 is scheduled for the first quarter of FY01. (Chuck Taberski, x6076)

Grizzly Substation Improvement

Amelco Electric, under contract to the University of California, has begun construction of improvements to the Grizzly Substation. The substation is de-energized, and all LBNL electrical power is being supplied by the University's new Hill Area Substation, located at the corner of Road S and Glaser. Construction will be completed in May 2001 (See article in *Facilities Quarterly*, 7/2000). (Chuck Taberski, x6076)

Sitewide Water Distribution Upgrade, Phase 1

Much of Berkeley Lab's fresh-water supply system has been in place for over 30 years. This project will replace about 0.9 mile (1.5 km) of cast iron pipe and upgrade the remaining 5 miles (8 km) of pipe with corrosion protection, new valves, pressure reducing stations, improvements to an existing water storage tank,

and a new water storage tank in the East Canyon area. Project design is in progress. (Dan Galvez, x6213)

Bldg 6: Laboratory and Office Buildout

This project will build out approximately 1,100 sq m (12,000 sq ft) of laboratory, office, and research support space in the existing unfinished area on the second floor of Building 6. (Richard Stanton, x6221)

Bldg 77: Rehabilitation of Building Structure and Systems

Construction will start in October. This project will arrest differential settlement of Building 77, replace building cross bracing, and realign bridge crane runways. (Bill Wu, x5316)

Bldg 2: Ventilation Improvements

This project will upgrade the heating, ventilation and air conditioning system in Building 2 to provide improved temperature control, improved pressure control and increased exhaust air capacity. (R. Stanton, x6221)

NANOSCIENCES *continued from page 2*

must go. The buildings slated for removal—among them some of Berkeley Lab's oldest—include buildings 4, 5, 5A, 5B, 7, 7A, 7C, 14, 16, 16A, 40, 41, and 52. These buildings have long been classified as substandard. Of course, there is a downside: Berkeley Lab will be faced with the challenging problem of relocating many staff for the duration of construction.

A task force has been assembled by Facilities Department Manager Bob Camper to get a head start on the problem. Task force members include Rick Gough, Head of the AFRD IBT Group; Alan Jackson, Head of the AFRD SuperCon Group; Jim Krupnick, Division Deputy for Planning ALS; Dick Dicely, Facilities Planner; Ross Fisher, EH&S Coordinator; and Nick Peterson, Senior Facilities Architect.

The task force is developing several scenarios for consideration by the Director's Action Committee (DAC) in early 2001. Solutions under consideration include relocation to off-hill leased space, development of temporary modular buildings on the Big C and Bay View parking lots, conversion of Building 71 HILAC high bay, and various on-hill relocations and consolidations.

As Facilities Architect Nick Peterson explains, "We're working to develop solutions that benefit the lab overall and are minimally compromising to the affected groups. With a project of this scale, everyone will be affected in one way or another. Our goal is to give management a clear picture of the challenges and compromises required to cost-effectively pull off a successful relocation effort."

LONG RANGE PLANNING *continued from page 3*

2022—with space needs that are expected to increase at about the same rate as population.

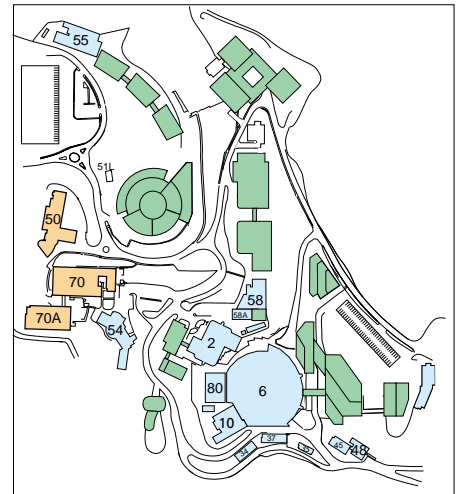
To meet these needs, the LRDP is likely to encourage replacement of many older buildings and trailers. These often small and under-utilized structures occupy some of our most valuable building sites, and it is anticipated that much of the Laboratory's future requirements can be met by demolishing these buildings and constructing modern, multistory structures. "Massing" studies are under way to ensure that new structures can be effectively integrated into the existing fabric of buildings and user requirements and that they will not be dominant features in the landscape.

The LRDP will be accompanied by an Environmental Impact Report (EIR), which will be reviewed by the Regents in the course of considering the LRDP for adoption. Both documents should be

available for public review in late 2001.

It is anticipated that the Regents will adopt the new LRDP in 2002. Adoption represents an endorsement of the DAC's long-term vision, and ensures that the Regents are fully informed of Berkeley Lab's long-term direction and may therefore give our projects expedited approval.

Berkeley Lab has sought input both from within the Laboratory and from the surrounding community regarding the scope and direction of these documents. The Facilities Department hosted a Lab-wide "town hall" meeting on this topic in September, and in October Berkeley Lab hosted an evening "scoping meeting" for the general public in downtown Berkeley. The Laboratory community will have additional opportunities for input into this process once the documents have been drafted. Watch for announcements in *Currents*.



The Old Town and Bevalac areas may look very different in the coming decades, as old buildings are replaced or rehabilitated (courtesy of Paul Franke).

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